

REMARKS

This Amendment is responsive to the Office Action mailed on January 31, 2006. Claims 36, 39, 41, 52, 53, and 69 are amended. Claims 36, 39-53, and 56-70 are pending in this application.

Claims 49, 50, 51, 66, 67, and 68 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description. The Examiner indicates that page 15 of Applicant's specification describes the supporting rings mentioned in claims 49, 50, 51, 66, 67, and 68 as "Schmitz rings." The specification is amended herein to change the term "Schmitz rings" to "bearer rings," which is the English language equivalent of the German term, as evidenced by the attached excerpt from the German-English Dictionary of Engineering and Technology, R. Ernst (5th Edition, 1989). Applicant respectfully submits that the term bearer ring is well-known in the art. Withdrawal of the rejections under 35 U.S.C. § 112 is respectfully requested.

Claims 36, 39-53, 56-68 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Vees (6,244,148) in view of Steinbock (4,622,730).

Claims 69 and 70 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Vees in view of Steinbock and in further view of Gautier (US 4,770,078).

Applicant respectfully traverses these rejections in view of the amended claims and the comments which follow.

Discussion of Amended Claims

Claim 36 is amended to specify a first end face on which a first pressure force is applied to provide tension along an inner section of the tool in a first direction and an oppositely disposed second end face on which a second pressure force is applied to provide tension along an inner section of the tool in a second direction, as well as a first bearing end which extends from said inner section beyond the first end face of the outer sleeve and a second bearing end which extends from said inner section beyond the second end face of the outer sleeve. In addition, claim

36 is amended to clarify that the outer sleeve is positioned between the first bearing end and the second bearing end and that the tool rotates via bearings carried on said first and second bearing ends and arranged beyond the outer sleeve. It is also clarified that first and second pressure forces are applied essentially parallel to the axis of rotation.

Claims 39, 41, 52, 53, and 69 are amended to conform to the changes made to claim 36.

Support for the claim amendments can be found in Applicant's Figure 4 and the corresponding description in the specification.

Discussion of Prior Art Rejections

Claim 36 is rejected in view of Vees and Steinbock. The Examiner acknowledges that Vees does not disclose an inner section, an end face on which a pressure force is applied to provide tension along an inner section of the tool, bearing ends which extend from the inner section beyond the outer sleeve, and bearings carried on the bearing ends beyond the outer sleeve, as claimed by Applicant (Office Action, page 3). The Examiner relies on Steinbock as showing these claimed features of Applicant's invention.

In particular, the Examiner indicates that Figure 4 of Steinbock discloses inner section 48, 52, 55, end face 61, and one bearing end 48 and another bearing end corresponding to the part of inner section 52 coaxial with element 49. The Examiner also indicates that Steinbock discloses bearings housed within elements 50 and 51.

Applicant respectfully disagrees with the Examiner's characterization of Steinbock. In Steinbock, element 49 is an arbor (Col. 6, line 10). The arbor 49 is part of the outer sleeve of the tool in Steinbock. The arbor 49 is not part of a bearing end of an inner section which extends beyond the outer sleeve, as claimed by Applicant.

In Steinbock, reference numeral 52 denotes a tension shaft which extends through arbor 49 and at least partially into arbor 48. This tension shaft applies a clamping force sufficient to maintain the arbors tightly clamped to the roll sleeve even when the roll assembly is subject to massive separating forces occurring during the rolling operation (Col. 6, lines 12-35). Such a tensioning shaft 52 does not act to apply tension to end face 61 in order to reduce a maximum oscillation amplitude of the tool transverse to the axis of rotation when in operation, as claimed by

Applicant. Rather, the tensioning shaft 52 of Steinbock serves to clamp the arbors 48, 49 and the roll sleeve 59 together during operation. There is no disclosure or suggestion in Steinbock of reducing oscillation amplitude of the tool as is claimed by Applicant.

Further, Steinbock does not disclose or remotely suggest the features of Applicant's amended claim 1. In particular, Steinbock does not disclose or remotely suggest an outer sleeve that includes a first end face on which a first pressure force is applied to provide tension along an inner section of the tool in a first direction and an oppositely disposed second end face on which a second pressure force is applied to provide tension along an inner section of the tool in a second direction, as claimed by Applicant. In Steinbock, the tensioning shaft 52 has one threaded end which is threaded into an opening in arbor 48. The other end extends through an opening in arbor 49 and is fitted with a threaded collar 54 (Col. 6, lines 12-19). Thus, threaded shaft 52 may arguably be said to provide pressure on the outer face of arbor 49, but not on an end face of the roll sleeve 59. Further, in Steinbock the tensioning shaft applies pressure in one direction. In contrast, with Applicant's claimed invention, the first and second end faces are oppositely disposed (i.e., on either end of the outer sleeve) and a first pressure is exerted on the first end face in a first direction and a second pressure is exerted on second end face in a second direction. For example, the first direction and second direction may be opposing directions such that each of the first and second pressure is exerted inward towards each other from the end faces of the outer sleeve. Such an arrangement is not disclosed or suggested by Steinbeck.

In addition, Steinbock does not disclose or remotely suggest a first bearing end which extends from the inner section beyond the first end face of the outer sleeve and a second bearing end which extends from the inner section beyond the second end face of the outer sleeve, as claimed by Applicant. In Steinbock, the bearings are disposed in bearing chocks 50 and 51 (Col. 6, lines 10-12). As can be clearly seen in Steinbock Figure 4, the flange 55 and jack bolts 57 are located beyond the bearing chock 51, and not the other way around as required by Applicant's claims.

Further, as discussed above, Steinbock does not disclose or remotely suggest that the first and second pressure forces are applied essentially parallel to said axis of rotation to reduce a maximum oscillation amplitude of the tool transverse to said axis of rotation during one of a cutting and embossing procedure.

Therefore, contrary to the Examiner's assertions, Steinbock does not cure the deficiencies of Vees.

In addition, Applicant respectfully submits that there is no motivation for one skilled in the art to combine the disparate disclosures of Vees and Steinbock. Vees discloses a substantially different way of arranging and securing the cutting tool than that used for the rolling mill disclosed in Steinbock. One skilled in the art would not have looked to Steinbeck when trying to improve a cutting device of the type disclosed in Vees. Only with hindsight impermissibly gained from Applicant's disclosure could one of ordinary skill in the art arrive at the conclusions reached by the Examiner.

Applicant respectfully submits that the present invention would not have been obvious to one skilled in the art in view of the combination of Vees and Steinbock, or any of the other references of record.

Withdrawal of the rejections under 35 U.S.C. § 103(a) is therefore respectfully requested.

Further remarks regarding the asserted relationship between Applicant's claims and the prior art are not deemed necessary, in view of the amended claims and the above discussion. Applicant's silence as to any of the Examiner's comments is not indicative of an acquiescence to the stated grounds of rejection.

Conclusion

In view of the above, the Examiner is respectfully requested to reconsider this application, allow each of the presently pending claims, and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicant's undersigned attorney.

Respectfully submitted,



Barry R. Lipsitz
Attorney for Applicant
Registration No.: 28,637
755 Main Street
Monroe, CT 06468
(203) 459-0200

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DR.-ING. RICHARD ERNST

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